



Department of Environmental Services Drinking Water Program

Analytical Requirements for Community Public Water Systems

December 6, 2007

The parameters listed in the table below must be analyzed and reported to DES. The water system is responsible for sample collection, reporting, and ensuring that the correct analytical methods are used. Please visit www.des.nh.gov/lab/dwmanual.pdf to review for sample collection and analysis guidance document. Please contact DES Drinking Water and Groundwater Bureau at (603) 271-2513 with questions regarding drinking water compliance. Click on: <http://www.des.nh.gov/asp/NHELAP/labsview.asp> to verify which labs are accredited by NH DES to perform analysis on drinking water samples.

The laboratory must:

1. Use EPA approved drinking water methods
2. Have current drinking water certification and /or accredited for analyses
3. Identify all subcontracted analyses, laboratories and their certification or accreditation
4. Comply with Env-Ws 322.11, **“Reporting Data from Commercial or Other Laboratories”**.

Parameter	Env-Ws	Group	SDWIS contaminant ID#	MCL (mg/l)	Trigger (mg/l)	Source	Health Effects---at levels above the MCL
<i>E. coli</i>	313.01 (f)	Bio		Absent	Presence	Human & animal fecal waste	May cause gastro-intestinal illness
Fecal Coliform	313.01 (f)	Bio		Absent	Presence	Human & animal fecal waste	May cause gastro-intestinal illness
Total Coliform	313.01 (f)	Bio		Absent	Presence	Naturally present in the environment	None, indicates possible presence of other bacteria
Asbestos ^j (fiber>10 micrometers)	314.01 (b)	IOC	1094	7 million fibers per liter (MFL) ^j	3.5 million fibers per liter (MFL)	Decay of asbestos cement in water mains; erosion of natural deposits	Increased risk of developing benign intestinal polyps
Arsenic	314.01 (b,d)	IOC	1005	0.010	0.005	Erosion of natural geological deposits; pesticide residue, industrial waste	Skin damage, circulatory system problems, carcinogen
Aluminum ^l	316.01 (b,c)	IOC	1002	0.05 ^l – 0.2	0.05		
Barium	314.01 (b)	IOC	1010	2	1	Geological; oil/gas drilling, painting, industrial waste	Muscular weakness, increase in blood pressure
Cadmium	314.01 (b)	IOC	1015	0.005	0.0025	Geological; mining, smelting, metal finishing; runoff from waste batteries and paints	Kidney damage
Chloride ^d	316.01 (b)	IOC	1017	250 ^d	250	Wastewater, road salt, water softeners, corrosion	Aesthetic
Chromium	314.01 (b)	IOC	1020	0.1	0.05	Used in electroplating, steel proc, synthetic fibers; erosion of natural deposits	Allergic dermatitis
Copper ^c	314.01 (c)	IOC	5000	90% of trigger ^c	1.3	Corrosion of household plumbing; erosion of natural deposits	Gastrointestinal distress; liver or kidney damage
Copper ^d	316.01 (b)	IOC	1022	1.0 ^d	1.3		
Cyanide (as free C)	314.01 (b)	IOC	1024	0.2	0.1	Used in electroplating, steel proc, plastics, synthetic fibers	Neurological, thyroid problems
Fluoride ^a	314.01 (b,e)	IOC	1025	4.0 ^a	2.0	Geological; additive to drinking water, toothpaste	Skeletal damage/mottled teeth in children
Fluoride ^d	316.01 (b)	IOC	1025	2.0 ^d	2.0		

Parameter	Env-Ws	Group	SDWIS contaminant ID#	MCL (mg/l)	Trigger (mg/l)	Source	Health Effects---at levels above the MCL
Iron ^d	316.01 (b)	IOC	1028	0.3 ^d	0.3	Geological	Aesthetic
Lead ^c	314.01 (c)	IOC	5000	90% of trigger ^c	0.015	Corrosion of household plumbing; erosion of natural deposits	Delays in physical or mental development in infants and children
Manganese ^d	316.01 (b)	IOC	1032	0.05 ^d	0.05	Geological	Aesthetic
Mercury	314.01 (b)	IOC	1035	0.002	0.001	Geological; used in mfg. of paint, paper, fungicides	Nervous system disorders, kidney damage
Nickel ⁿ		IOC	1036	n.e. ⁿ		Geological; electroplating, battery production, ceramics	Heart, liver, skin, weight loss
Nitrate (as N)	314.01 (b)	IOC	1040	10	5	Geological; fertilizer, sewage, feedlots	Methemoglobinemia, "Blue Baby Syndrome"
Nitrite (as N)	314.01 (b)	IOC	1041	1	0.5	Geological; fertilizer, sewage, feedlots	Methemoglobinemia, "Blue Baby Syndrome"
Selenium	314.01 (b)	IOC	1045	0.05	0.025	Geological; by-product of copper mining/smelting	Numbness in fingers or toes; circulatory problems, hair or fingernail loss
Silver ^l	316.01 (b)	IOC	1050	0.1 ^l	0.1		
Sodium ^l	316.01 (b)	IOC	1052	100-250 ^l	250	Road salt, septic system (salt from softeners)	Aesthetic
Sulfate ^d	316.01 (b)	IOC	1055	250 ^d	250	Naturally occurring	
Sulfide ^l	316.01 (b)	IOC	n.e.	0.05 ^l	0.05		
Antimony	314.01 (b)	IOC	1074	0.006	0.003	Geological; flame retardants, ceramics, pesticides	Increase in blood cholesterol; decrease in blood sugar
Beryllium	314.01 (b)	IOC	1075	0.004	0.002	Geological; used in high thermal conductivity materials	Intestinal lesions
Thallium	314.01 (b)	IOC	1085	0.002	0.001	Geological; electronics industry, alloys and glass mfg	Kidney, liver, or intestinal problems; blood chemistry; hair loss
Zinc ^d	316.01 (b)	IOC	1095	5 ^d	5	Galvanized pipes	Possible presence of other health related heavy metals
pH ^d	316.01 (b)	IOC	1925	6.5-8.5 ^d	8.5	Precipitation and geology	Aesthetic
Uranium (Mass)	312.01 (a)	Rad	4006	30 ug/L	If Detected	Erosion of natural deposits	Increased risk of cancer; kidney problems
Radium 226 ^e	312.01 (a,c)	Rad	4020	n.e. ^e		Erosion of natural deposits	
Radium 228 ^e	312.01 (a,c)	Rad	4030	n.e. ^e		Erosion of natural deposits	
Radium 226 & 228 (Combined)	312.01 (a,c)	Rad	4010	5 piC/l	If Detected	Erosion of natural deposits	Increased risk of cancer
Analytical Gross Alpha ^e	324	Rad	4002	n.e. ^e		Erosion of natural deposits and radioactive materials	

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Radon ^k	312.01 (d)	Rad	4004	n.e. ^k		Erosion of natural deposits and radioactive materials	Increased risk of cancer
Compliance Gross Alpha	312.01 (a)	Rad	4000	15 pCi/l	If Detected	Erosion of natural deposits and radioactive materials	Increased risk of cancer
Beta Particles ^l	312.01 (a)	Rad	4100	4 mrem/yr ^l	If Detected	Decay of natural and man-made deposits	Increased risk of cancer
Endrin	315.02 (a)	SOC	2005	0.002	If Detected	Banned Pesticide	Liver problems/nervous system effects
Lindane	315.02 (a)	SOC	2010	0.0002	If Detected	Insecticide used on seed, lumber, livestock, restricted 1983	Liver or kidney problems
Methoxychlor (DMDT, Martate)	315.02 (a)	SOC	2015	0.04	If Detected	Insecticide used on fruit trees, vegetables, livestock	Reproductive difficulties
Toxaphene	315.02 (a)	SOC	2020	0.003	If Detected	Insecticide used on cotton and cattle; prohibited in 1982	Liver, thyroid, or kidney problems; increased risk of cancer
Dalapon ^h	315.02 (a,b)	SOC	2031	0.2 ^h	If Detected	Herbicide	Kidney problems
Diquat ^h	315.02 (a,b)	SOC	2032	0.02 ^h	0.02	Herbicide	Cataracts
Endothall ^h	315.02 (a,b)	SOC	2033	0.1 ^h	0.1	Herbicide	Stomach and intestinal problems
Glyphosate	315.02 (a)	SOC	2034	0.7	If Detected	Herbicide	Kidney problems; reproductive difficulties
Di(2-ethylhexyl)adipate	315.02 (a)	SOC	2035	0.4	If Detected	Plastics	General toxic effects or reproductive difficulties; increased risk of cancer
Oxamyl (Vydate)	315.02 (a)	SOC	2036	0.2	If Detected	Insecticide used on apples, potatoes, & tomatoes.	Slight nervous system effects
Simazine	315.02 (a)	SOC	2037	0.004	If Detected	Herbicide	Blood problems
Di(2-ethylhexyl)phthalate	315.02 (a)	SOC	2039	0.006	If Detected	Plastics	Liver and reproductive problems; increased risk of cancer
Picloram	315.02 (a)	SOC	2040	0.5	If Detected	Herbicide	Liver problems
Dinoseb	315.02 (a)	SOC	2041	0.007	If Detected	Herbicide	Reproductive difficulties
Hexachlorocyclopentadiene	315.02 (a)	SOC	2042	0.05	If Detected	Waste By-Product in mfg of Chlorinated Pesticides	Kidney or stomach problems
Aldicarb sulfoxide	315.02 (a)	SOC	2043	0.004	If Detected	Degraded from Aldicarb by Plants	Nervous system problems
Aldicarb sulfone (aldoxycarb)	315.02 (a)	SOC	2044	0.002	If Detected	Degraded from Aldicarb by Plants	Nervous system problems
Carbofuran (Furadon, 4F)	315.02 (a)	SOC	2046	0.04	If Detected	Soil fumigation. Insecticide on corn, cotton	Nervous system, reproductive difficulties, headache, sweating, nausea
Aldicarb (Temik)	315.02 (a)	SOC	2047	0.003	If Detected	Insecticide used on cotton, potatoes	Sweating, leg weakness, nausea, nervous system
Atrazine (Atranex, Crisazine)	315.02 (a)	SOC	2050	0.003	If Detected	Herbicide, weed control	Cardiovascular system or reproductive problems

Parameter	Env-Ws	Group	SDWIS contaminant ID#	MCL (mg/l)	Trigger (mg/l)	Source	Health Effects---at levels above the MCL
Alachlor (Lasso)	315.02 (a)	SOC	2051	0.002	If Detected	Herbicide used on corn, soybeans	Eyes, liver, kidney, or spleen problems; anemia; increased risk of cancer
2,3,7,8 TCDD (Dioxin) ^h	315.02 (a,b)	SOC	2063	0.00000003 ^h	If Detected	Combustion emissions	Reproductive difficulties; increased risk of cancer
Heptachlor	315.02 (a)	SOC	2065	0.0004	If Detected	Banned insecticide	Liver damage; increased risk of cancer
Heptachlor epoxide	315.02 (a)	SOC	2067	0.0002	If Detected	Breakdown product of heptachlor	Liver damage; increased risk of cancer
2,4-D	315.02 (a)	SOC	2105	0.07	If Detected	Herbicide to control broad leaf weeds	Kidney, liver, or adrenal gland problems
2,4,5 TP (Silvex)	315.02 (a)	SOC	2110	0.05	If Detected	Herbicide (prohibited in 1984)	Liver problems
Hexachlorobenzene	315.02 (a)	SOC	2274	0.001	If Detected	Fungicide, wood preservatives	Liver or kidney problems; reproductive difficulties; increased risk of cancer
Benzo (a) pyrene (PAHs)	315.02 (a)	SOC	2306	0.0002	If Detected	Fossil fuel, wood, coal, or tar burning	Reproductive difficulties; increased risk of cancer
Pentachlorophenol	315.02 (a)	SOC	2326	0.001	If Detected	Wood preservative and herbicide	Liver or kidney problems; increased risk of cancer
Polychlorinated biphenyls (PCB) ^h	315.02 (a,b)	SOC	2383	0.0005 ^h	If Detected	Waste chemical runoff; old transformer	Skin changes; immune deficiencies; reproductive or nervous system deficiencies; increased risk of cancer
Dibromochloropropane (DBCP) ^h	315.02 (a,b)	SOC	2931	0.0002 ^h	If Detected	Soil fumigation on soybeans, corn; prohibited in 1977	Liver or kidney problems; increased risk of cancer
Ethylene dibromide (EDB) ^h	315.02 (a,b)	SOC	2946	0.00005 ^h	If Detected	Gas additive; soil fumigant, solvent, prohibited in 1984	Reproductive, liver, or kidney problems, increased risk of cancer
Chlordane	315.02 (a)	SOC	2959	0.002	If Detected	Banned Insecticide for termite control	Liver or nervous system problems; increased risk of cancer
Methyl tertiary-butyl ether (MtBE) ^g	315.01 (a)	VOC	2251	0.013 ^g	If Detected	Gasoline additive	Kidney or liver damage; increased risk of cancer
Methyl tertiary-butyl ether (MtBE) ^d	316.01 (b)	VOC	2251	0.020 ^d	0.020		
Tertiary amyl methyl ether (TAME) ^e (2-methoxy-2-methylbutane)		VOCU	0003	n.e. ^e		Gasoline additive	
Tertiary butyl alcohol (TBA) ^e		VOCU	0004	n.e. ^e		Gasoline additive	
Ethyl tertiary butyl ether (ETBE) ^e		VOCU	0005	n.e. ^e		Gasoline additive	
Di-isopropyl ether (DIPE) ^e		VOCU	0006	n.e.		Gasoline additive	
1,2,4-Trichlorobenzene	315.01 (a)	VOC	2378	0.07	If Detected	Mfg of herbicides, dye carrier	Adrenal gland problems
1,2-Dichloroethylene (cis)	315.01 (a)	VOC	2380	0.07	If Detected	Industrial extraction solvent	Liver problems
Chloroform ^{f,m}		VOCU	2941	n.e. ^{f,m}		Disinfection by product	Increased risk of cancer
Bromoform ^{f,m}	315.03 (d)	VOCU	2942	n.e. ^{f,m}		Disinfection by product	Increased risk of cancer
Bromodichloromethane ^{f,m}	315.03 (d)	VOCU	2943	n.e. ^{f,m}		Disinfection by product	Increased risk of cancer

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Chlorodibromomethane (Dibromochloromethane) ^{f,m}		VOCU	2944	n.e. ^{f,m}		Disinfection by product	Increased risk of cancer
Xylene (total)	315.01 (a)	VOC	2955	10	If Detected	Paint and Ink solvent: gas refining by-product	Nervous system damage
Dichloromethane (methylene chloride)	315.01 (a)	VOC	2964	0.005	If Detected	Solvent	Increased risk of cancer; liver problems
1,2 Dichlorobenzene (o)	315.01 (a)	VOC	2968	0.6	If Detected	Industrial chemicals	Liver, kidney, or circulatory system problems
1,4 Dichlorobenzene (para)	315.01 (a)	VOC	2969	0.075	If Detected	Used in insecticides, moth balls, air deodorizers	Anemia; liver, kidney, or spleen problems
Vinyl chloride	315.01 (a)	VOC	2976	0.002	If detected	Leaching from PVC pipes; plastics factory discharge	Increased risk of cancer
1,1-Dichloroethylene	315.01 (a)	VOC	2977	0.007	If Detected	Industrial extraction solvent	Liver problems
1,2-Dichloroethylene (trans)	315.01 (a)	VOC	2979	0.1	If Detected	Industrial extraction solvent	Liver problems
1,2 Dichloroethane	315.01 (a)	VOC	2980	0.005	If Detected	Industrial extraction solvent	Increased risk of cancer
1,1,1-Trichloroethane	315.01 (a)	VOC	2981	0.2	If Detected	Industrial solvent/degreaser	Nervous system, circulatory, or liver problems
Carbon tetrachloride	315.01 (a)	VOC	2982	0.005	If Detected	Industrial solvent/degreaser	Liver problems; increased risk of cancer
1,2-Dichloropropane	315.01 (a)	VOC	2983	0.005	If Detected	Industrial solvent	Increased risk of cancer
Trichloroethylene	315.01 (a)	VOC	2984	0.005	If Detected	Waste from dry cleaning materials; industrial solvent	Liver problems; increased risk of cancer
1,1,2-Trichloroethane	315.01 (a)	VOC	2985	0.005	If Detected	Industrial solvent	Kidney, liver, or immune system problems
Tetrachloroethylene	315.01 (a)	VOC	2987	0.005	If Detected	Dry cleaning, industrial solvent	Liver problems; increased risk of cancer
Monochlorobenzene (Chlorobenzene)	315.01 (a)	VOC	2989	0.1	If Detected	Industrial solvent	Liver or kidney problems
Benzene	315.01 (a)	VOC	2990	0.005	If Detected	Gas additive; Industrial solvent	Anemia; increased risk of cancer
Toluene	315.01 (a)	VOC	2991	1	If Detected	Gas additive; Industrial solvent	Kidney, nervous system, or liver problems
Ethylbenzene	315.01 (a)	VOC	2992	0.7	If Detected	Gas additive	Kidney or liver problems
Styrene	315.01 (a)	VOC	2996	0.1	If Detected	Plastic mfg; resins used in H2O treatment equip	Liver, kidney, or circulatory system problems

Abbreviations:

MCL- The **Maximum Contaminant Level** allowed in drinking water
SDWIS – **Safe Drinking Water Information System**
Bio - biological
Rad - radiological parameter
IOC - inorganic compound
IOCU - inorganic compound - unregulated
SOC - synthetic organic compound
SOCU - synthetic organic compound - unregulated
VOC - volatile organic compound
VOCU - volatile organic compound - unregulated
n.e. - not established-reporting is required

Footnotes:

- ^aFluoride has a secondary MCL of 2.0 mg/L, and a primary MCL of 4.0 mg/L
^bpH is expressed in units of hydrogen ion activity
^cLead and Copper samples are collected in tap water samples throughout the distribution system
^dAesthetic Regulated Secondary MCLs
^eRecommended additional reporting parameters
^fTotal MCLs combined equals 0.100 mg/L
^gMtBE has a secondary MCL of 0.020 mg/L and a primary MCL of 0.013 mg/L
^hState waiver in place-sampling required for initial water quality testing only
ⁱBeta particle testing required only for systems deemed vulnerable by the Department and notified that testing is mandatory.
^jMonitoring for Asbestos is conducted every 9 years for systems containing asbestos lined pipes
^kRadon testing only required for initial water quality of new wells
^lSecondary MCLs waived after initial water quality testing; Env-Ws 316.01(e)
^mOnly applicable to systems that disinfect their wells (TTHMs)
ⁿMonitoring and reporting requirements for nickel remain even though the MCL and MCLG were removed from state/federal regulations.

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